AMENDMENTS TO THE CLAIMS

Claim 1 (Currently Amended): A thermoplastic composition, comprising:

a poly(arylene ether);

a poly(alkenyl aromatic) resin in an amount of at least about 10 weight percent of the total of the poly(arylene ether) and the poly(alkenyl aromatic) resin;

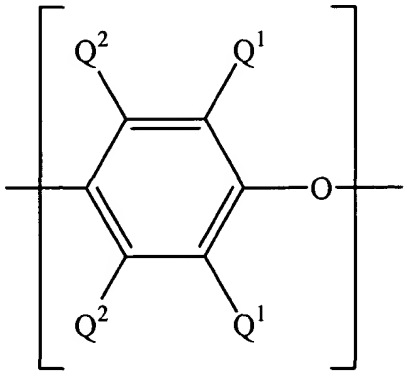
a polyolefin;

a hydrogenated block copolymer of an alkenyl aromatic compound and a conjugated diene, wherein the hydrogenated block copolymer has an alkenyl aromatic content of 40 to about 90 weight percent;

a polyolefin-graft-cyclic anhydride copolymer consisting of a polyolefin backbone and polar grafts formed from polymerization of one or more cyclic anhydrides, wherein the polyolefin backbone comprises at least 80 weight percent of units derived from polymerization of ethylene, propylene, butylene, or a mixture thereof; and

a reinforcing filler comprising glass fibers.

Claim 2 (Original): The thermoplastic composition of Claim 1, wherein the poly(arylene ether) comprises a plurality of structural units of the formula



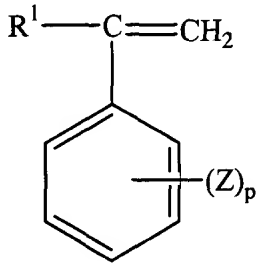
wherein for each structural unit, each Q^1 is independently halogen, primary or secondary C_1-C_8 alkyl, phenyl, C_1-C_8 haloalkyl, C_1-C_8 aminoalkyl, C_1-C_8 hydrocarbonoxy, or C_2-C_8 halohydrocarbonoxy wherein at least two carbon atoms separate the halogen and oxygen atoms; and each Q^2 is independently hydrogen, halogen, primary or secondary C_1-C_8 alkyl, phenyl, C_1-C_8 haloalkyl, C_1-C_8 aminoalkyl, C_1-C_8 hydrocarbonoxy, or C_2-C_8 halohydrocarbonoxy wherein at least two carbon atoms separate the halogen and oxygen atoms.

Claim 3 (Original): The thermoplastic composition of Claim 2, wherein each Q^1 is independently C_1–C_4 alkyl or phenyl, and each Q^2 is independently hydrogen or methyl.

Claim 4 (Original): The thermoplastic composition of Claim 1, wherein the poly(arylene ether) is a copolymer of 2,6-dimethylphenol and 2,3,6-trimethylphenol.

Claim 5 (Original): The thermoplastic composition of Claim 1, wherein the poly(arylene ether) is present at about 10 weight percent to about 55 weight percent, based on the total weight of the composition.

Claim 6 (Original): The thermoplastic composition of Claim 1, wherein the poly(alkenyl aromatic) resin comprises at least 25% by weight of structural units derived from an alkenyl aromatic monomer of the formula



wherein R^1 is hydrogen, C_1-C_8 alkyl, or halogen; Z is vinyl, halogen, or C_1-C_8 alkyl; and p is 0 to 5.

Claim 7 (Original): The thermoplastic composition of Claim 6, wherein the poly(alkenyl aromatic) resin comprises at least one poly(alkenyl aromatic) resin selected from the group consisting of atactic homopolystyrene, syndiotactic homopolystyrene, rubber-modified polystyrene, and mixtures comprising at least one of the foregoing poly(alkenyl aromatic) resins.

Claim 8 (Original): The thermoplastic composition of Claim 1, wherein the poly(alkenyl aromatic) resin is present at about 1 weight percent to about 50 weight percent, based on the total weight of the composition.

Claim 9 (Canceled)

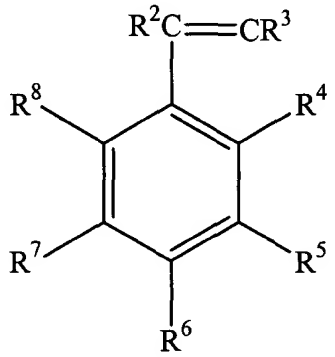
Claim 10 (Original): The thermoplastic composition of Claim 1, wherein the polyolefin is a propylene polymer; wherein the propylene polymer is a homopolymer of polypropylene, or a random, graft, or block copolymer of propylene and at least one olefin selected from ethylene and C_4-C_{10} alpha-olefins, with the proviso that the copolymer comprises at least about 80 weight percent of repeating units derived from propylene.

Claim 11 (Original): The thermoplastic composition of Claim 1, wherein the polyolefin comprises a homopolypropylene.

Claim 12 (Original): The thermoplastic composition of Claim 1, wherein the polyolefin is present at about 10 weight percent to about 60 weight percent, based on the total weight of the composition.

Claim 13 (Previously Amended): The thermoplastic composition of Claim 1, wherein the hydrogenated block copolymer comprises:

(A) at least one block derived from an alkenyl aromatic compound having the formula



wherein R^2 and R^3 each represent a hydrogen atom, a C_1-C_8 alkyl group, or a C_2-C_8 alkenyl group; R^4 and R^8 each represent a hydrogen atom, a C_1-C_8 alkyl group, a chlorine atom, or a bromine atom; and R^5-R^7 each independently represent a hydrogen atom, a C_1-C_8 alkyl group, or a C_2-C_8 alkenyl group, or R^4 and R^5 are taken together with the central aromatic ring to form a naphthyl group, or R^5 and R^6 are taken together with the central aromatic ring to form a naphthyl group; and

(B) at least one block derived from a conjugated diene, in which the aliphatic unsaturated group content in the block (B) is reduced by hydrogenation.

Claim 14 (Original): The thermoplastic composition of Claim 1, wherein the hydrogenated block copolymer comprises a styrene-(ethylene-butylene)-styrene triblock copolymer.

Claim 15 (Original): The thermoplastic composition of Claim 1, wherein the hydrogenated block copolymer has a styrene content of about 50 to about 85 weight percent.

Claim 16 (Original): The thermoplastic composition of Claim 1, wherein the hydrogenated block copolymer has a styrene content of about 55 to about 70 weight percent.

Claim 17 (Original): The thermoplastic composition of Claim 1, wherein the hydrogenated block copolymer is present at about 1 weight percent to about 20 weight percent, based on the total weight of the composition.

Claim 18 (Original): The thermoplastic composition of Claim 1, wherein the a polyolefin-graft-cyclic anhydride copolymer is a polypropylene-graft-maleic anhydride copolymer.

Claim 19 (Original): The thermoplastic composition of Claim 1, wherein the a polyolefin-graft-cyclic anhydride copolymer is present at about 0.1 to about 10 weight percent, based on the total weight of the composition.

Claim 20 (Currently Amended): The thermoplastic composition of Claim 1, wherein the reinforcing filler further comprises a filler ~~is~~ selected from the group consisting of ~~glass fibers,~~ talc, quartz fibers, carbon fibers, potassium titanate fibers, silicon carbide fibers, boron carbide fibers, gypsum fibers, aluminum oxide fibers, iron fibers, nickel fibers, copper fibers, wollastonite fibers, poly(ether ketone) fibers, polyimide benzoxazole fibers, poly(phenylene sulfide) fibers, polyester fibers, aromatic polyamide fibers, aromatic polyimide fibers, aromatic polyetherimide fibers, acrylic fibers, poly(vinyl alcohol) fibers, polytetrafluoroethylene fibers, and combinations comprising at least one of the foregoing reinforcing fillers.

Claim 21 (Currently Amended): The thermoplastic composition of Claim 1, wherein the ~~reinforcing filler comprises~~ glass fibers ~~having~~ have a diameter of about 2 to about 25 micrometers.

Claim 22 (Currently amended): The thermoplastic composition of Claim 1, wherein the reinforcing filler further comprises talc.

Claim 23 (Currently amended): The thermoplastic composition of Claim 1, wherein the reinforcing filler further comprises vapor-grown carbon fibers having an average diameter of about 3 to about 500 nanometers.

Claim 24 (Original): The thermoplastic composition of Claim 1, wherein the reinforcing filler comprises a surface coating in an amount effective to increase compatibility with the polyolefin.

Claim 25 (Original): The thermoplastic composition of Claim 1, wherein the reinforcing filler is present at about 1 weight percent to about 50 weight percent, based on the total weight of the composition.

Claim 26 (Original): The thermoplastic composition of Claim 1, further comprising an unhydrogenated block copolymer of alkenyl aromatic compound and a conjugated diene.

Claim 27 (Original): The thermoplastic composition of Claim 26, wherein the unhydrogenated block copolymer comprises a styrene-butadiene diblock copolymer or a styrene-butadiene-styrene triblock copolymer.

Claim 28 (Original): The thermoplastic composition of Claim 26, wherein the unhydrogenated block copolymer of alkenyl aromatic compound and a conjugated diene is present at about 0.5 weight percent to about 20 weight percent, based on the total weight of the composition.

Claim 29 (Original): The thermoplastic composition of Claim 1, further comprising a polypropylene-polystyrene graft copolymer.

Claim 30 (Original): The thermoplastic composition of Claim 29, wherein the polypropylene-polystyrene graft copolymer comprises a graft copolymer having a propylene polymer backbone and one or more styrene polymer grafts.

Claim 31 (Original): The thermoplastic composition of Claim 29, wherein the polypropylene-polystyrene graft copolymer comprises about 10 to about 90 weight percent propylene polymer backbone and about 90 to about 10 weight percent styrene polymer grafts.

Claim 32 (Original): The thermoplastic composition of Claim 29, wherein the polypropylene-polystyrene graft copolymer is present at about 0.5 weight percent to about 20 weight percent, based on the total weight of the composition.

Claim 33 (Previously Amended): The thermoplastic composition of Claim 1, wherein the polyolefin is homopolypropylene, and wherein the composition further comprises an ethylene/alpha-olefin elastomeric copolymer at about 0.5 weight percent to about 25 weight percent, based on the total weight of the composition.

Claim 34 (Original): The thermoplastic composition of Claim 33, wherein the ethylene/alpha-olefin elastomeric copolymer comprises a copolymer of ethylene and at least one C_3-C_{10} alpha-olefin.

Claim 35 (Original): The thermoplastic composition of Claim 33, wherein the ethylene/alpha-olefin elastomeric copolymer comprises an ethylene-butylene rubber, an ethylene-propylene rubber, or a mixture thereof.

Claim 36 (Original): The thermoplastic composition of Claim 1, further comprising a hydrogenated block copolymer of an alkenyl aromatic compound and a conjugated diene, wherein the hydrogenated block copolymer has an alkenyl aromatic content of about 10 to less than 40 weight percent.

Claim 37 (Original): The thermoplastic composition of Claim 1, further comprising an additive selected from the group consisting of stabilizers, mold release agents, processing aids, flame retardants, drip retardants, nucleating agents, UV blockers, dyes, pigments, particulate fillers, antioxidants, anti-static agents, blowing agents, and combinations comprising at least one of the foregoing additives.

Claim 38 (Original): The thermoplastic composition of Claim 1, wherein the composition after molding exhibits a flexural modulus at 23°C according to ASTM D790 greater than about 300 kpsi.

Claim 39 (Original): The thermoplastic composition of Claim 1, wherein the composition after molding exhibits a sample-to-sample variability in Flexural Modulus at 23°C of less than about 10 percent.

Claim 40 (Currently Amended): A thermoplastic composition, comprising:

a poly(arylene ether);

a poly(alkenyl aromatic) resin;

a polyolefin;

a hydrogenated block copolymer of an alkenyl aromatic compound and a conjugated diene, wherein the hydrogenated block copolymer has an alkenyl aromatic content of about 40 to about 90 weight percent;

a polyolefin-graft-cyclic anhydride copolymer consisting of a polyolefin backbone and polar grafts formed from polymerization of one or more cyclic anhydrides, wherein the polyolefin backbone comprises at least 80 weight percent of units derived from polymerization of ethylene, propylene, butylene, or a mixture thereof;

a polypropylene-polystyrene graft copolymer or an unhydrogenated block copolymer of an alkenyl aromatic compound and a conjugated diene; and

a reinforcing filler comprising glass fibers.

Claim 41 (Currently Amended): A thermoplastic composition, comprising:

about 10 to about 55 weight percent of a poly(arylene ether);

about 1 to about 50 weight percent of a poly(alkenyl aromatic) resin; wherein the amount of poly(alkenyl aromatic) resin is at least about 10 weight percent of the total of the poly(arylene ether) and the poly(alkenyl aromatic) resin;

about 10 to about 60 weight percent of a polyolefin;

about 1 to about 20 weight percent of a hydrogenated block copolymer of alkenyl aromatic compound and a conjugated diene having an alkenyl aromatic content of about 40 to about 90 weight percent;

about 0.1 to about 10 weight percent of a polyolefin-graft-cyclic anhydride copolymer consisting of a polyolefin backbone and polar grafts formed from polymerization of one or more cyclic anhydrides, wherein the polyolefin backbone comprises at least 80 weight percent of units derived from polymerization of ethylene, propylene, butylene, or a mixture thereof; and

about 1 to about 50 weight percent of a reinforcing filler <u>comprising glass fibers</u>;

wherein all weight percents are based on the total weight of the composition.

Claim 42 (Currently Amended): A thermoplastic composition, comprising:

about 10 to about 55 weight percent of a poly(arylene ether);

about 1 to about 50 weight percent of a poly(alkenyl aromatic) resin;

about 10 to about 60 weight percent of a polyolefin;

about 1 to about 20 weight percent of a hydrogenated block copolymer of alkenyl aromatic compound and a conjugated diene having an alkenyl aromatic content of about 40 to about 90 weight percent;

about 0.5 to about 20 weight percent of a polypropylene-polystyrene graft copolymer or an unhydrogenated block copolymer of an alkenyl aromatic compound and a conjugated diene; ~~and~~

about 0.1 to about 10 weight percent of a polyolefin-graft-cyclic anhydride copolymer consisting of a polyolefin backbone and polar grafts formed from polymerization of one or more cyclic anhydrides, wherein the polyolefin backbone comprises at least 80 weight percent of units derived from polymerization of ethylene, propylene, butylene, or a mixture thereof; and

about 1 to about 50 weight percent of a reinforcing filler <u>comprising glass fibers</u>;

wherein all weight percents are based on the total weight of the composition.

Claim 43 (Currently Amended): A thermoplastic composition, comprising:

about 10 to about 55 weight percent of a poly(arylene ether);

about 1 to about 50 weight percent of a poly(alkenyl aromatic) resin;

about 10 to about 60 weight percent of a polyolefin;

about 1 to about 20 weight percent of a hydrogenated block copolymer of alkenyl aromatic compound and a conjugated diene having an alkenyl aromatic content of about 40 to about 90 weight percent;

about 0.1 to about 10 weight percent of a polyolefin-graft-cyclic anhydride copolymer consisting of a polyolefin backbone and polar grafts formed from polymerization of one or more cyclic anhydrides, wherein the polyolefin backbone comprises at least 80 weight percent of units derived from polymerization of ethylene, propylene, butylene, or a mixture thereof;

about 1 to about 50 weight percent of a reinforcing filler comprising glass fibers;

about 0.5 to about 20 weight percent of a polypropylene-polystyrene graft copolymer or an unhydrogenated block copolymer of an alkenyl aromatic compound and a conjugated diene; and

about 0.5 to about 25 weight percent of an ethylene/alpha-olefin elastomeric copolymer;

wherein all weight percents are based on the total weight of the composition.

Claim 44 (Currently Amended): A thermoplastic composition, comprising the reaction product of:

a poly(arylene ether);

a poly(alkenyl aromatic) resin in an amount of at least about 10 weight percent of the total of the poly(arylene ether) and the poly(alkenyl aromatic) resin;

a polyolefin;

a hydrogenated block copolymer of an alkenyl aromatic compound and a conjugated diene, wherein the hydrogenated block copolymer has an alkenyl aromatic content of about 40 to about 90 weight percent;

a polyolefin-graft-cyclic anhydride copolymer a polyolefin-graft-cyclic anhydride copolymer consisting of a polyolefin backbone and polar grafts formed from polymerization of one or more cyclic anhydrides, wherein the polyolefin backbone comprises at least 80 weight percent of units derived from polymerization of ethylene, propylene, butylene, or a mixture thereof; and

a reinforcing filler comprising glass fibers.

Claim 45 (Original): An article comprising the composition of Claim 44.

Claim 46 (Original): An article comprising the composition of Claim 44, wherein the article is formed using at least one method selected from the group consisting of injection molding, blow molding, extrusion, sheet extrusion, film extrusion, profile extrusion, pultrusion, compression molding, thermoforming, pressure forming, hydroforming, and vacuum forming.

Claim 47 (Original): A sheet comprising the composition of Claim 44.

REMARKS

Claim Amendments

Claims 1 and 40-44 have been amended to include the limitation that the reinforcing filler comprises glass fibers. Support for these amendments may be found, at least, in claim 20 as filed. Claim 42 has also been amended to delete a redundant "and."

Claims 20, 22, and 23 have been amended for consistency with amended Claim 1 to characterize the composition as further comprising the respective fillers.

Claim 21 has been amended for consistency with Claim 1 to acknowledge the antecedent basis for glass fibers.

Claim Objection Under 37 C.F.R. 1.75(c)

Claim 9 stands objected to under 37 C.F.R. 1.75(c) as being of improper dependent form for failing to further limit the subject matter of a previous claim. The present cancellation of claim 9 renders this objection moot.

Claim Rejections Under 35 U.S.C. § 112, Second Paragraph

Claims 1-47 stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Specifically, the office action states that

> [i]t is not clear if the "polyolefin" is necessarily a different component from the "polyolefin-graft cyclic anhydride copolymer" in that a polyolefin graft cyclic anhydride copolymer is also a polyolefin and it is therefore unclear if the polyolefin and the polyolefin graft cyclic anhydride copolymer may constitute only one material or necessarily constitute at least two different materials.

(6/25/03 Office Action, page 2, fourth paragraph.)

Applicants respectfully traverse this rejection.

The claims must be read in light of the specification. *Seattle Box Co. v. Industrial Crating and Packing, Inc.*, 731 F.2d 818, 826, 221 U.S.P.Q. 568, 573-574 (Fed. Cir. 1984)("The proper standard for indefiniteness is whether one of ordinary skill in the art would understand what is claimed when the claim is read in light of the specification."). Applicants' specification, at paragraph [0078], expressly states that "[a]s the composition is defined as comprising multiple components, it will be understood that each component is chemically distinct, particularly in the instance that a single chemical compound may satisfy the definition of more than one component." It is therefore clear that the "polyolefin" is necessarily a different component from the "polyolefin-graft-cyclic anhydride copolymer," and that the "polyolefin" and the "polyolefin-graft-cyclic anhydride copolymer necessarily constitute at least two different materials. Claims 1-47 are therefore not indefinite. Applicants respectfully request the reconsideration and withdrawal of the rejection of Claims 1-47 under 35 U.S.C. §112, second paragraph.

Claim Rejections Under 35 U.S.C. § 103(a)

Claims 1-22, 24-29, and 33-47 stand rejected under 35 U.S.C. § 103(a), as allegedly unpatentable over U.S. Patent No. 4,480,057 to Sano ("Sano"). Applicants respectfully traverse this rejection.

Sano generally describes a composition comprising a matrix of polyphenylene oxide or a blend of polyphenylene oxide and a styrene-based polymer, and a dispersed phase whose principal component is a crystalline olefin polymer surrounded by a crystalline hydrogenated styrene-conjugated diene copolymer or hydrogenated styrene-conjugated diene copolymer, the dispersed phase being filled with an inorganic filler. (Sano Abstract.) A critical feature of Sano is a dispersed phase "substantially completely surrounding each particle of [the particulate inorganic] filler." (Sano, column 2, lines 13-15). The broadest description of the dimensions of the particulate filler is that it has "an average particle diameter smaller than 2 microns." (Sano, column 8, lines 51-52.) Given these characterizations of the particulate filler, it is not surprising that Sano does not describe the use of glass fibers.

Applicants Claims 1 and 40-44 have been amended so that all independent claims now recite the limitation that the reinforcing filler comprises glass fibers.

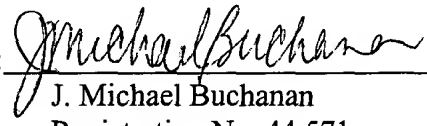
For an obviousness rejection to be proper, the Examiner must meet the burden of establishing a prima facie case of obviousness. *In re Fine*, 5 U.S.P.Q.2d 1596, 1598 (Fed. Cir. 1988). Establishing a prima facie case of obviousness requires that all elements of the invention be disclosed in the prior art. *In re Wilson*, 165 U.S.P.Q. 494, 496 (C.C.P.A 1970). A prima facie case has not been established against Applicants' independent Claims 1 and 40-44 because each of those claims recite the presence of glass fibers, and glass fibers are not taught by Sano. Not only are glass fibers not taught by Sano, they are antithetical to Sano, which requires a particulate filler that has a diameter less than 2 microns and is completely surrounded by dispersed phase resin. Sano thus teaches away from the use of glass fibers. Given that Claim 9 has been canceled, and given that Claims 2-8, 10-39, and 45-47 each depend ultimately from and further limit one of independent Claims 1 and 40-44, Applicants respectfully request the reconsideration and withdrawal of the rejection of Claims 1-8 and 10-47 under 35 U.S.C. §103(a) over Sano.

It is believed that the foregoing amendments and remarks fully comply with the Office Action and that the claims herein should now be allowable to Applicants. Accordingly, reconsideration and allowance is requested.

If there are any additional charges with respect to this Amendment or otherwise, please charge them to Deposit Account No. 07-0862 maintained by Assignee.

Respectfully submitted,

CANTOR COLBURN LLP
Applicants' Attorneys

By: 
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